more, tests for viability of tubercle bacilli that might have escaped detection in the lymph nodes resulted negatively when suspensions of such nodes were repeatedly transplanted in series of other normal animals. The phenomenon of the production of specific tuberculous antibodies with filtrates is explained by Eberson on the basis of allergy to a toxic substance liberated by the tubercle culture.

The earlier literature by Pickert and Löwenstein [4] and shortly afterward by White and collaborators [5] and Fischer [6] apparently serve to confirm the views of Eberson. These investigators commented on practically similar observations as to the behavior of tuberculosis serum and its augmenting effect on skin reactions in tuberculous patients. Recently, Schilling and Hockenthal [7] offered evidence as to the hypersensitiveness to the serums of tuberculous patients.

In discussing filterability of the tuberculosis virus the question of types of filter may not be without some significance. However, there is additional interesting evidence in favor of the existence of a toxic substance rather than a special filterable intermediate form of tubercle bacilli. Noteworthy are the studies of Preisich and Heim,[8] Heymans,[9] Moussu,[10] and Zieler,[11] who showed that specific tuberculous reactions could be elicited in nontuberculous animals with dialyzable materials when collodion sacs containing living tubercle bacilli were inserted into body cavities or tissues of rabbits, guinea pigs, sheep, goats and cattle. Needless to state, careful controls were made on the permeability of the sacs and their intact condition throughout the experiments. Most illuminating was the fact that tuberculoid structures could be produced without localized tuberculous infection.

It is reasonable to believe that the typical histologic picture of the tubercle is not to be explained solely by the action of the bacillary bodies of the tubercle bacillus. Zieler found for example that the B. E., or bacillus emulsion, gave the weakest histologic reaction of all types of O. T. used, despite the presence of bacillary particles, and furthermore noted most profound tissue changes after the use of dialyzable substances obtained from the tubercle bacillus. That soluble materials are definitely capable of producing tuberculoid structures seems established. The recent studies with lipoid and phosphatid derivatives of tuberculin by Eberson [12] and similar preparations of the tubercle bacillus by Goris,[13] Nègre and Boquet,[14] and subsequently Anderson [15] have added further confirmation of the hitherto suspected but untested properties of the so-called tuberculosis virus.

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Neuropsychiatry

New Views as to Epilepsy.—Convulsive seizures arise from many causes and require thorough investigation to attach them to a definite pathology. The large number of fits which cannot be so attached we group together under the name of "essential epilepsy."

Recent studies on epilepsy by Fay [1] and by Lennox and Cobb [2] present some new conceptions which merit serious consideration.

Fay has noticed, as have other surgeons, that when a convulsion comes on while a brain is exposed during operation the cortex becomes intensely congested and there is great increase of subarachnoid and sometimes of supra-arachnoid fluid, and he has seen the convulsion brought to an immediate close by the evacuation of this fluid.

Investigations carried on under his direction have disclosed, in epileptics, changes in the pacchionian bodies which would impair their function as filters through which the cerebrospinal fluid is drained into the venous sinuses. He urges that the water intake exercises a decisive influence upon the production of the cerebrospinal fluid, whose accumulation in excess, over the cortex, is apt to contribute to the production of convulsive seizures in the predisposed. In suitably controlled cases he has been able greatly to reduce or entirely suppress convulsive seizures by dehydration. He reduced the daily water intake to between 240 cubic centimeters and 600 cubic centimeters which his patients took for long periods without bad results.

Lennox and Cobb discuss the physicochemical factors involved in the production of convulsive seizures, under the following theses:

1. "Acidosis tends to inhibit, alkalosis to augment seizures."

Acidosis may be induced: (*a*) By fasting or by a diet rich in fat and poor in carbohydrates.

(*b*) By ingestion of acids or acid-forming salts. (*c*) Through vigorous physical exercises. (*d*) Temporarily, by increasing the CO_2, by rebreathing, or inhaling air containing a high percentage of CO_2.

2. "An increased tension of oxygen in the tissues tends to inhibit, decreased tension to augment, seizures."

3. "Edema of the brain tends to increase, dehydration to decrease, seizures."

The combination of increased intracranial pressure, anoxemia, and alkalosis will almost surely bring on a fit in one predisposed, but other physicochemical processes may modify the convulsive tendency, and alteration of the chemical constituents of the body fluids plays a part; for instance, increase of chlorid and decrease of ionized calcium and glucose in the blood seem to contribute toward seizures.

The observations of Fay seem to confirm some older views as to the value of removing excess of fluid accumulated in the brain membranes in epilepsy. He is, however, conservative in his operative measures and prefers withdrawing excess of fluid through spinal puncture as far as possible. He also makes small trephine holes and aspirates what cannot be reached by the former method. He does not favor extensive decompressions.

The physicochemical considerations presented by Lennox and Cobb give support to the ketogenic diet of Peterman and offer what may prove valuable suggestions as to treatment, especially of the dreaded *status epilepticus,* in which it should be practicable to administer inhalations of air rich in oxygen and carbonic acid which are now available in most places of any size.

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Medicine in Soviet Russia.—Dr. Ralph A. Reynolds, retired president of the American Medical Association of Vienna, on his return from Soviet Russia told the New York *Herald Tribune* that he had visited a large number of clinics in Moscow and Leningrad. Under the socialist system every worker is insured, and when he gets ill the insurance not only pays the full wage during the time of disablement but also the hospital expense.

An institution which has no parallel abroad is the night sanatorium for workers who are in a poor physical condition. These workers, instead of going home when their working hours are over, pass the remainder of the day and the night in the sanatorium. They get a shower and are put to bed for an hour, then do physical culture exercises after which they may occupy themselves as they like until bedtime, which is fixed at an early hour. They are also served a special diet. Only on Sundays are they allowed to leave for their homes. Such a "cure" generally lasts two months. In Moscow there are twenty-four night sanatoria, ten of which are for tuberculosis suspects.

There are 156 day nurseries in Moscow alone, each of them near a big factory. The average attendance is 125 children. To instil the spirit of sovietism at an early age pictures of Lenin as a babe decorate the walls.

The medical service is public. Everybody is entitled to free treatment. About 140 physicians are on duty at a Moscow clinic, and from thirty to forty doctors are detailed to at-home service during the night hours. As private practice is abolished anyone taken ill or meeting with an accident during the night telephones to the nearest clinic and is taken care of.

Village clinics have been distributed so that each clinic serves a population of 15,000. In the more sparsely populated districts this means that many people are more than fifty miles from a doctor. It is difficult to win the uncultured peasant class to modern ideas of hygiene; conditions in the open country are still appalling.

The Russian Government spends money lavishly on modern instruments and other equipment. Funds are always available for research work and propaganda, but the salaries of doctors are small and cannot compare with what a professor or a practitioner can earn in other countries. Physicians of high standing get about a hundred dollars a month and have to be contented with a miserable home of one or three rooms with a kitchen that is often shared by as many as six families. The idea is that a doctor's home should not be so good as the class of homes given to Communist skilled workers who form the aristocratic class in the Soviet Republic.

As the prospects for the medical students are totally different from what they once were, the class of people who go in for medical studies has undergone considerable change. Only those who support the Soviets enter the medical career. Women students, who, before the war, were 34 per cent are now 55 per cent of those studying medicine. Ninety-seven per cent of all medical students are educated by the government. In return they must go where the government sends them when they have completed their studies. For many this means exile in some out of the way place with great hardships. After having served three years on the post assigned to them they are free to make a choice of their own. They can shorten this three-year period if they accomplish something outstanding. Medical studies take five years in medical school and one year in hospital.

Russian doctors follow the progress of medicine in other countries closely and take over all improvements, but their own scientific research leaves much to be desired. Dr. Reynolds had the impression that the Bolshevist system is becoming firmly entrenched, and that the rulers of Russia have the country well in hand.—Lillian A. Chase.—*Canadian Medical Association Journal,* September 1929.

Find Radium Waters Are Valueless.—Drinking waters supposed to contain radioactive substances have been widely advertised in the past few years as cures for various ills. Today all sorts of radium solutions are offered both to the physician and to the public with loud claims as to their virtue in the treatment of arthritis, neuritis, gout, anemia, leukemia, blackheads, pimples and what have you, according to an editorial in *Hygeia.*

Actually many of these contain insufficient radium to have any appreciable effects. Now, after watching the development of these preparations carefully for several years the Council on Pharmacy and Chemistry of the American Medical Association in a recent report expresses the conviction that the value of radium solutions in the treatment of disease is not demonstrated by dependable evidence. Thus the council dismisses the claims of the promoters with the opinion that even if their products contained radium there is no evidence that they would have any value.—*Hygeia.*